

**REMARKS*****Status of the Claims***

Claims 2 – 9, 18, and 19 are pending, with claim 18 being independent. Claims 1, 10 – 17, and 20 have been canceled without prejudice to or disclaimer of subject matter contained therein. Claims 2, 7, 8 and 9 have been amended to even more clearly recite and distinctly claim the present invention. Support for the amendments may be found throughout the specification, including in the original claims. Therefore no new matter has been added.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

***Double Patenting***

Claims 1-12, 14-16, 18, and 19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15, 19-35, and 39-42 of copending Application 10/059,383 and over claims 1-11, 13-21, and 24-40 of copending Application 10/059,382.

Applicants believe that the present claims are patentable over claims 1-15, 19-35, and 39-42 of copending Application 10/059,383 and over claims 1-11, 13-21, and 24-40 of copending Application 10/059,382. However, to facilitate allowable subject matter, a terminal disclaimer over copending Applications 10/059,383 and 10/059,382 will be submitted under separate cover, as appropriate, once allowable subject matter has been agreed upon. The filing of a Terminal Disclaimer is not to be construed as an admission of the propriety of the rejection on the grounds of obviousness-type double patenting. *Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870, 20 USPQ2d 1392 (Fed. Cir. 1991).

In view thereof, Applicant respectfully requests that this rejection be withdrawn.

***Claim Rejections under U.S.C. §103(a)***

Claims 1, 4, 6-12, 14, 16, 18 and 19 are rejected under 37 CFR §103(a) as allegedly being unpatentable over *Catalyst Reforming*, PennWell Books, 1985 (“Little”) in view of U.S. Patent No. 4,080,397 (“Derr”).

Little describes catalytic reforming of a *heavy straight run naphtha from crude oil*, which is a key process in petroleum refining. (see, present specification Page 7, lines 11-13 and Little Page 3). Little discloses that hydrogen is a valuable reforming product and, in refineries, hydrogen yield is the source of part or all of the hydrogen used for hydrotreating, hydrocracking, or hydrorefining processes. (Page 1).

Derr relates to a method and process combination for upgrading synthetic oils, such as coal derived oils, boiling above gasoline boiling material. In the process of Derr, a 350°F+ Fischer-Tropsch product is upgraded by hydrotreating the product and selective cracking the hydrotreated material boiling above 600°F. Derr discloses that a product slate comprising LPG, *gasoline*, jet fuel, light and heavy oil fractions is recovered. Derr discloses that the synthetic feed prepared by Fischer Tropsch synthesis is relatively low in sulfur, usually in the range of about 30 ppm to 50 ppm weight; therefore, it is important to not only presulfide the hydrogenation catalyst but also to maintain the sulfided state of the catalyst during the mild hydrogenation by the continuous addition of a suitable sulfiding compound. (Col. 3, lines 28 – 38). Derr further discloses that the sulfur compounds in the feed are not sufficient by themselves to maintain the catalyst in a sulfided condition in the presence of oxygenates and the hydrogen requirements of the process; therefore, a suitable sulfur activating compound must be added to the operation. (Col. 3, lines 39 – 47). As such, Derr discloses and claims adding a *sulfur compound* to the feed to provide up to 250 ppm sulfur in the feed. However, Derr does not disclose or suggest using petroleum-derived feedstocks as a source sulfur.

In contrast, the presently claimed invention is directed to a process for upgrading a *Fischer-Tropsch naphtha* to produce a gasoline component. This process comprises hydrotreating a Fischer-Tropsch naphtha to remove oxygenates, producing hydrotreated Fischer-Tropsch naphtha. The hydrotreated Fischer-Tropsch naphtha is reformed, producing hydrogen by-product and a gasoline component having a research octane rating of at least about 80. The hydrogen by-product is recirculated to hydrotreat the Fischer-Tropsch naphtha. The Fischer-Tropsch naphtha is a blended naphtha, having a *sulfur level of at least about 1 ppm*, obtained by *mixing the Fischer-Tropsch naphtha with a petroleum-derived naphtha*.

According to the presently claimed invention, recirculation of hydrogen by-product generated during naphtha reformation to hydrotreat naphtha before reformation may substantially limit the amount of hydrogen that needs to be added for hydrotreatment. (Page 10, Lines 9-13). Accordingly, during naphtha reformation, the presently claimed invention produces hydrogen by-product that can be used in hydrotreating, hydrocracking and hydrodewaxing processes to inexpensively upgrade Fischer-Tropsch products. Thus, the presently claimed invention inexpensively provides at least a portion of the hydrogen needed for hydrotreatment processes without having to employ expensive separation processes or separation hydrogen production facilities. (Page 4, Lines 15-20).

Also, according to the presently claimed invention, a problem encountered during upgrading is that the Fischer Tropsch products do not contain sulfur but do contain oxygenates. The least expensive catalysts for hydrotreating use sulfided catalysts, but when sulfided catalysts are used in the presence of oxygenates and in the absence of sulfur, the oxygen in the feedstock replaces sulfur on the catalyst, leading to a decline in the catalyst's performance. Typically, pure chemicals are used to maintain the sulfided catalyst; however, pure chemicals are expensive. (Page 3, Lines 7 – 25).

Advantageously, the presently claimed invention protects the hydrotreating catalysts by *mixing the Fischer-Tropsch naphtha with a petroleum-derived naphtha* to provide a blended naphtha, having a sulfur level of at least about 1 ppm. Blending the Fischer Tropsch naphtha with a petroleum derived naphtha is surprisingly advantageous. The conventional petroleum naphtha has a chemical composition that is analogous to the Fischer Tropsch naphtha, and by blending these analogous products, the presently claimed process provides for upgrading the petroleum derived product with the Fischer Tropsch naphtha. (Page 3, Line 26 – Page 4, Line 6).

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

Applicants respectfully submit that there is no suggestion or motivation, either in the Little and Derr or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Little describes catalytic reforming of a heavy straight run naphtha from *crude oil*. In contrast, Derr relates to a process of upgrading a 350°F+ Fischer-Tropsch product by *hydrotreating* the product and then *selective cracking* the hydrotreated material boiling above 600°F to provide a product slate comprising LPG, *gasoline*, jet fuel, light and heavy oil fractions is recovered. It is respectfully submitted that there would be not motivation or suggestion to combine the reforming process of Little with the hydrotreating and then selective cracking process of Derr. It is respectfully submitted that a heavy straight run naphtha from crude oil does not contain oxygenates. Accordingly, there would be no motivation or suggestion to combine a hydrotreating step to remove oxygenates prior to reforming a heavy straight run naphtha from crude oil as in the process Little. In addition, the process of Derr provides a gasoline product directly from the hydrotreating and subsequent selective cracking without the need for an additional upgrading step such as reforming. Accordingly, there would be no motivation or suggestion to combine a reforming step with the hydrotreating and selective cracking of Derr, which already produces a gasoline product. Moreover, one of skill in the art would not know whether to combine the reforming process of Little after both the hydrotreating and subsequent selective cracking or merely after the hydrotreating of Derr. Therefore, Applicants respectfully submit that there is no suggestion or motivation, to combine Little and Derr.

Furthermore, even if combined, Applicants respectfully submit that Little in view of Derr does not disclose or suggest all the claim limitations. Little in view of Derr does not disclose or suggest a blended naphtha, having a sulfur level of at least about 1 ppm, obtained by mixing a Fischer-Tropsch naphtha with a petroleum-derived naphtha. Little merely discloses reforming a heavy straight run naphtha from crude oil. Derr discloses maintaining the sulfided state of the hydrogenation catalyst by the continuous addition of a suitable sulfiding compound to the Fischer Tropsch feed. Therefore, even when combined, Little in view of Derr does not disclose or suggest a blended naphtha obtained by mixing a Fischer-Tropsch naphtha with a petroleum-derived naphtha.

In addition, even if combined, Applicants respectfully submit that Little in view of Derr does not disclose or suggest hydrotreating a Fischer Tropsch naphtha, comprising Fischer Tropsch naphtha mixed with a petroleum derived naphtha, to remove oxygenates, producing a hydrotreated Fischer Tropsch naphtha; reforming the hydrotreated Fischer-Tropsch naphtha, producing hydrogen by-product and a gasoline component having a research octane rating of at least about 80; and recirculating the hydrogen by-product to hydrotreat the Fischer-Tropsch naphtha. Accordingly, withdrawal of the obviousness rejection is respectfully requested.

Claim 5 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Little in view of Derr, and further in view of U.S. Patent No. 4,673,487. Claim 5 has been canceled without prejudice to or disclaimer of the subject matter therein, thereby obviating this rejection.

Claims 2, 3, and 15 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Little in view of Derr, and in further in view of U.S. Patent No. 6,583,186 (Moore). Claims 2 and 3 are dependent on claim 18 and thus recite further limitations and claim 15 has been canceled.

As described above, Little describes catalytic reforming of a *heavy straight run naphtha from crude oil*, which is a key process in petroleum refining.

Also as described above, Derr relates to a method and process combination for upgrading synthetic oils, such as coal derived oils, boiling above gasoline boiling material. In the process of Derr, a 350°F+ Fischer-Tropsch product is upgraded by hydrotreating the product and selective cracking the hydrotreated material boiling above 600°F. Derr discloses that a product slate comprising LPG, *gasoline*, jet fuel, light and heavy oil fractions is recovered.

Moore discloses a method for hydroprocessing Fischer-Tropsch products. Moore is cited by the Examiner as merely disclosing a hydrotreating catalyst comprising Pt or Ni.

Applicants respectfully submit that Moore does not disclose or suggest any element that would supplement the above-described deficiencies of Little in view of Derr.

Accordingly, even if combined, Little in view of Derr and further in view of Moore does not disclose or suggest the presently claimed process as set forth in detail above.

Therefore, withdrawal of the obviousness rejections is respectfully requested.

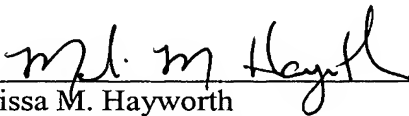
***Conclusion***

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim particularly preferred embodiments of Applicants' invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing amendments and remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. The Examiner is invited to contact the undersigned at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By:   
Melissa M. Hayworth  
Registration No. 45,774

P.O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620

Date: May 3, 2004